EPRC ECONOMIC POLICY RESEARCH CENTRE

Towards Sustainable Development

POLICY BRIEF

Issue No. 154 September 2022

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The most critical priority investments required by the Ugandan Agricultural Sector

Executive Summary

This brief identifies and ranks eight priority investment areas in the agricultural sector. The top three are; improved seed/ breeds, extension services and fertilizers. It is recommended that: i) investment in the development, certification, regulation and distribution of improved seeds and breeds is critical; ii) recruit, retool, facilitate, and incentivize extension workers to deliver services to farmers; iii) subsidize the cost of fertilizers to increase uptake and enforce fertiliser regulations to mitigate the adverse effects of counterfeits on the market, and iv) strengthen the linkage between the district extension workers and other government institutions.

Introduction

Uganda has experienced impressive economic growth over the last three decades and significant poverty reduction. Notwithstanding this progress, the country has not attained the envisaged middle-income status. Even though there is evidence of structural transformation, with a steady decline in the ratio of agricultural to GDP over time, the sector still employs most of the labour force. To achieve the national goal of economic transformation and reach middle-income status, the Government of Uganda rolled out the National Development Plan (NDP) III for 2021-2025. One of the NDP III programmes is the Agro-industrialization (AGI) programme, which aims to increase household income through agro-industry. To this end, a set of key interventions for the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and its agencies for the 2020/21-2024/25 period has been formulated. Given the magnitude of the amounts invested, policy-makers need to make concrete decisions and take strategic actions. The overall

aim of these decisions is to ensure that investments deliver the best outcomes, and this will often involve selecting the commodity, location and type of investment.

This policy brief focuses on identifying the most critical areas for investments in five selected districts (a commodity per district) and ranks the relative importance of eight policy priority areas (seed, fertilizer, mechanization, irrigation, extension, Research and Development (R&D), roads and electrification) for each selected district-commodity combination. Finally, it proposes clear and actionable recommendations on commodity/sector-specific investments in the prioritized districts. The brief is an extract from a study commissioned by the Food and Agriculture Organization (FAO) titled '*Identification of commodity-specific priority investments in selected districts of Uganda.'*

Methodology

The study used a methodology that arrived at the commodity-district pairs, complemented by a selection of government priority commodities in selected districts (Millet-Soroti, Cassava-Lira, Maize-Serere, Goats-Kibaale and Coffee-Masala). The method selected a few districts to prioritize based on unrealized potential and poverty prevalence and applied an iterative elimination algorithm to restrict the set of proposed districts. As a result, this process generated concrete evidence on commodity-specific investment needs across the eight policy priority areas at the district level in a way that considered the knowledge of beneficiaries and experts on the ground. The ranking was obtained through a triangulation of different qualitative methods, including Key Informants Interviews (KIIs), In-Depth Interviews (IDIs) and Focus Group Discussions (FGDs) that compiled the opinions of critical experts.

Findings

The study established that, while the eight priority investments differ by commodity, improved seed/breeds, extension services and fertilizers were generally identified as key across most commodities (Table 1). In particular, issues related to lack of access to improved seeds/breeds, under the provision of extension services and sub-optimal use of fertilizer (due to cost, lack of information or fertilizer quality) were highlighted as key issues. Other important but less frequent identified issues included a very low level of mechanization throughout the value chain, sub-optimal institutional linkages that prevented a better transmission of R&D from research institutions to farmers, and high costs of irrigation which prevented its large-scale adoption. On the other hand, we did not perceive access to roads and electrification as key investment areas. This is understandable, given that the majority of the roads in selected districts are passable and all-weather. Note that these last two priority investment areas require a lot of resources for investment. Perhaps roads did not attract a lot of attention owing to the heavy investments that the Government has made in infrastructure development in the last ten years. For electricity, it is observed that it attracted less attention

Table 1 Ranking of the priority investment areas across the commodities and districts

	Investment Priority Area	Millet / Soroti	Maize / Serere	Cassava / Lira	Goats / Kibaale	Coffee / Masaka	Average	Rank
1	Seed/breed	2	1	1	1	2	1.4	**1**
3	Extension	1	4	3	2	3	2.6	**2**
2	Fertilizer/	4	3	8	3	1	3.8	**3**
4	Mechanization	3	2	2	5	8	4	**4**
5	R & D	7	5	4	4	4	4.8	**5**
5	Irrigation	5	6	7	8	5	6.2	**6**
7	Roads	6	8	6	7	6	6.6	**7**
8	Electrification	8	7	5	6	7	6.6	**8**

because the respondents mainly emphasized the production part of the commodity value chains and not processing.

Table 2 below summarises the prioritized intervention areas for the selected commodities, their related constraints, and proposed solutions. For the details of ranking per commodity and district pair, refer to the original paper.

Table 2 Combined actionable recommendations for all the commodities in the five Districts

Investment Area and Constraint	Recommendation	Responsible entity
1. Seed/ breed		
• Available improved seed is too costly • Limited/delayed supply of improved seed • A negative perception of improved seeds. • Low supply of high-yielding, disease-resistant improved cassava varieties • Late delivery of planting materials (cassava cuttings) • Costly improved quality breeds and the absence of goat breeders in the community results in limited access • Quality Boer goats supplied by the Government were few and delayed the process of goat multiplication • Farmers do not have access to a certified source of coffee seedlings • Seedlings price is determined by the private dealers who are unable to meet the seedlings demand	• Increase availability and access to improved seed and ensure timely distribution • Invest in the dissemination of information on improved seed varieties • Develop early-maturing finger millet varieties • Change the negative perception of improved seed varieties through extension services • Increase budget for seed multiplication • Link mandates of research institutions and private companies to ensure timely seed distribution. • Involve farmers in seed development to ensure that farmer preferences are met • Support research to continue developing high-yielding, drought- and pest-resistant cassava • Establish certified nurseries in each parish to provide improved access to quality seed • Train farmers on certified seedlings and good agricultural practices • Support the Kibaale district to set up goat breeders in the community. • Subside the initial goat stock of breeds for farmers and increase the number	• MAAIF, • NGOs • Farmer cooperatives • Seed companies • Research institutions • Extension system • Private Sector • NAADS • OWC • MTICs • UCDA • OWC • DDA • NAGRC&DB • LG
2. Extension		
• Limited access to knowledge on agronomics and post-harvest handling • Inadequate facilitation for extension officers limits the effectiveness of extension services • Few extension officers for the number of farmers • Low frequency and inadequate contact extension • Absence of information in the local language • Lack of specialized equipment for veterinary services • Extension officers heavily rely on rudimentary methods to conduct their activities	• Provide training on good agronomic practices and improved seed • Increase the number of extension staff and improve their facilitation and incentives (materials, transport, tools, etc) • Enhance the capacity of the extension officers at the district and sub-county level focusing on more current and relevant skills. • Develop, print and disseminate materials in local languages • Use channels preferred by farmers for effective dissemination of information (e.g. radio) • Set up demonstration centres in sub-county to improve knowledge on improved breeds • Build staff capacity on technologies and management of new diseases • Equip livestock extension workers with appropriate tools and other livestock equipment (e.g.) vaccine refrigerators	• MAAIF • DP • NARO • LG • Research institution • DDA • NAGRC&DB

Investment Area and Constraint	Recommendation	Responsible entity
3. Fertilizer		
• Adoption and utilization of fertiliser is low because it is too costly for most farmers • Farmers have limited knowledge of fertilizer • Fertiliser is not readily available to all farmers because of the limited number of agro-input dealers • Prevalence of fake fertilizers on the market • Negative perception towards the use of fertilisers. • Cost of fertilizer is high • Adulterated and fake fertilzers on the market • Counterfeit animal drugs on the market • Lack of knowledge and skills to handle the available animal drugs • Lack of know-how on the application of inorganic fertilizers	• Invest in the provision of extension services or information (sensitisation) on the use and application of fertiliser • Promote the establishment of input dealer outlets to increase the availability of fertilizer • Enforce standards for fertilizers to ensure fake fertilizer products are off the market • Reduce the negative perception of fertiliser use through extension services. • Ensure fertilizers are available & affordable • Invest in establishing regional soil testing laboratory that handle soil and diseases. • Enforce the regulations for the distribution and use of livestock drugs. • Government should provide subsidized fertilisers and animal drugs • Train farmers on the use of drugs and acaricides management • Train farmers on the benefits and identification of authentic inorganic fertilize.	• MAAIF • DP • Extension system • NARO, • LG • Private sector • NDA • UNBS
4. Mechanization		
• Inadequate access to mechanisation tools limits large-scale undertaking • Small plot sizes are not conducive for mechanisation • Lack of spares, knowledge, and skills to manage and maintain equipment • Agricultural machinery (e.g. tractors, walking tractors) is not readily available • Limited access to electricity. Reliance on diesel-run generators for mills is expensive	• Promote low-cost mechanization technologies adapted to the needs of farmers, including hand tractors, weeders, harvesting machines, and storage facilities. • Build the capacity of local persons in the repair and maintenance of equipment • Provision of machinery at subsidised prices. • Train more agro-engineers and technicians to support the repair of agricultural machinery • Enforce standards for machinery • Increase access to and utilisation of electricity for production and processing.	• MAAIF • Research institutions • DP • Namalere • MTIC • MoWT • Private sector • UNBS • LG • MWE
5. Research and Development		
• Adoption of improved varieties lower than expected • Limited access to information on new seed varieties and technologies for some farmers • The research generated by research stations does not reach most farmers. This indicates weak R&D-extension services linkages. • Limited supervision of seed multiplication conducted by private companies leads to lower quality standards	• Support research institutions in the development of improved and better varieties (high yielding, disease and drought resistant) of cassava ▪ Train farmers on cassava post-harvest handling practices and processing technologies. ▪ Strengthen mechanisms for joint operation between NAROs, ZARDIs and districts. • Strengthen the linkage between research institutions, the extension service system and farmers	• Extension system • MAAIF • DPs • MAAIF • Namulonge Research Centre • LG • ZARDI • Research Institutions

Investment Area and Constraint	Recommendation	Responsible entity
6. Irrigation and water for livestock production		
• Prolonged drought during last 2-3 years • Cost of acquisition and maintenance of irrigation equipment prevents the adoption of irrigation technology • Some irrigation facilities in the district stopped operations • Knowledge and information on irrigation is lacking among farmers	• Revive valley dams and invest in low-cost irrigation technologies • Provide irrigation support systems to ensure the sustainability of irrigation investment • Develop cassava varieties well adapted to semi-arid marginal areas to reduce the need for irrigation • Enable farmers to acquire low-cost water equipment such as water pumps, pipes and tanks for livestock watering • Sensitize farmers on the need for irrigation to increase resilience against climate change and prolonged dry spells	• MAAIF • NARO • Namulonge Research Centre • DP • LG • MWE • MoWT
7. Roads		
• Feeder roads in some areas are not properly maintained and become impassable during seasons of heavy rains • Road maintenance equipment and machinery was provided to the districts, but funds to operate them are not available	• Ensure regular maintenance of community roads • Construct more all-weather roads in the farming communities • Increase budget to operate existing maintenance equipment and machinery	• MoWT • UNRA • LG
8. Electrification		
• The cost of electricity is too high to support post-harvest value-addition activities such as processing (milling and grinding) • Alternative sources such as diesel and solar are expensive • Low access to electricity due to inadequate coverage and high costs of connection and consumption • There are no transformers and transmission lines in most communities • Load-shedding is very common and disruptive	• Increase the availability of electricity by minimizing load shedding and power outages • Increase the availability of electricity by expanding coverage, ensuring that all townships in are connected • Lower the cost of industrial power connection and consumption to promote value-addition processes • Explore and introduce affordable alternative sources of energy (e.g. solar)	• ERA • UMEME • REA • UFZA • UIA

Conclusion and recommendations

To contribute to the agro-industrialization programme, Government will need to prioritise investment in the first three identified investment areas: seed/breed, extension services and fertilizers. This does not imply that the rest of the investment areas will be ignored; instead, a sequencing approach can be adopted. It will require strong interaction between the Government responsible agencies and the private sector stakeholder. Overall, the outstanding actionable recommendations include the following:

i. To enhance production and productivity, the Government, development partners and the private sector should invest in the development, certification, regulation and distribution of improved seeds and breeds. Improvement of access to improved seeds should be made with complementary support services, such as effective regulation and seed inspection, to ensure that certified commercial seed meets the regulatory quality standards. Support the districts to set up goat breeding centres in the community to supply farmers with improved breeds at a subsidized cost;

ii. Recruit, retool, facilitate, and incentivize extension workers to deliver services to farmers, which may require an increase in the budget allocation. Ensure effective dissemination of extension information in all feasible, more comprehensive coverage, affordable and easy-to-understand forms (radio, televisions, demonstration farms, pamphlets, among others) to

increase uptake;

iii. Subsidize the price of fertilizers to increase uptake and enforce fertiliser regulations to mitigate the adverse effects of fake and adulterated fertilisers on the market;

iv. Strengthen the linkage between the district extension workers and other government institutions. This will require strengthening institutional coordination and streamlining the roles of different government agencies responsible for R&D and extension;

v. Strengthen the linkage between research institutions, the extension service system and farmers;

vi. Enforce rules and regulations for drugs, pesticides and other agro-chemicals to minimize adulteration of drugs, and implement approved policies with support from the community support system; and

vii. Promote affordable, appropriate low-cost technologies that have been modified to meet the needs of farmers to improve production and productivity as far as mechanization and irrigation are concerned. For example, introducing hand tractors, weeding equipment, harvesting machines, storage aids, small-scale irrigation systems, and recyclable seeds.

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Endnotes

1 The National Agricultural Research Organisation Act (2005), the National Agricultural Research Act (2005), the Local Government Act (1997), Seed and Plant Act (2006), Agriculture chemicals (control) Act (2006), Dairy Industry Act (1998), National Agricultural Research Act (2005), National Agricultural Advisory Services Act (2001), Water Act (1997)

2 Water Policy (1999), National Agricultural, Research Policy (2006), the National Meat Policy (2001), the National Animal Breeding Policy (1997), the National Animal Feeds Policy (2005) and the National Fisheries Policy (1998). However, Uganda did not have an overarching agricultural sector policy – this was further developed in 2013.

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